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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WEJ 504265PCT	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/NZ2004/000183	International filing date (day/month/year) 12 August 2004	Priority date (day/month/year) 12 August 2003	
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ G06F 17/60			
Applicant SCHEL SOFTWARE LIMITED et al			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 9 sheets, as follows:

☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒ Box No. I Basis of the report

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 8 March 2005	Date of completion of the report 2 December 2005
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer Matthew Hollingworth Telephone No. (02) 6283 2024

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/NZ2004/000183

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1 (b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-2, 6-16 as originally filed/furnished
 - pages* 3-5, 5a received by this Authority on 11 November 2005 with the letter of the same date
 - pages* received by this Authority on with the letter of
- ☒ the claims:
- pages as originally filed/furnished
 - pages* as amended (together with any statement) under Article 19
 - pages* 17-21 received by this Authority on 11 November 2005 with the letter of the same date
 - pages* received by this Authority on with the letter of
- ☒ the drawings:
- pages 1-5 as originally filed/furnished
 - pages* received by this Authority on with the letter of
 - pages* received by this Authority on with the letter of
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to the sequence listing (*specify*):

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-33	YES
	Claims	NO
Inventive step (IS)	Claims 1-33	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-33	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

- D1: Atul Phadnis, *Let There Be Optimisers*, as archived 2 May 2003
<http://web.archive.org/web/20030502181353/www.tamindia.com/optimiser1.htm>
- D2: US 6,338,043 B1 (MILLER), 8 January 2002
- D3: *Conference Transcript: Modern Concepts in Media: Optimizers*, October 1998
<http://www.tvb.org/events/transcripts/981014/981014-opt.asp>

NEW CITATION:

- D4: P. De Maeyer et al, *Interactive Media Planning*, August 2002
http://www.columbia.edu/~rk35/media_optimizer_2003.pdf

The above citations represent the closest available prior art, and do not disclose the claimed invention. In particular, the recalculation of the exposure attribute for a media buying option to account for those already selected appears to be novel and inventive.

Target Audience Rating Points (TARPs): Also known as Rating, Average Audience or GRP (Gross Rating Points). The TARPs measure for individual spots/quarter hours is the percentage of the target audience viewing a channel at that time. For example, if 12% of a target audience is viewing a channel then it is achieving 12 TARPs. TARP on several spots in a schedule may be calculated by adding the TARPs for each spot. For example, if 3 spots are in a schedule and each of them rates a 12, the schedule achieves 36 TARPs in total.

Frequency: Average frequency is the typical number of times an advertisement was seen by a person. Average frequency may be calculated by dividing total campaign ratings (TARPs) by the overall reach. For example, 200 TARPs might be needed to reach half of the target audience. The average frequency is 200 (ratings) divided by 50 (overall reach) = 4.0 times.

Cost per TARP (CPT): is the cost of a media buying option divided by its TARP value and is a measure of cost efficiency.

Reach Corridor: Exposure Targets are often expressed in terms of a reach corridor. An example of a reach corridor is: Reach 50% 2-5 times. This means that 50% of the target audience saw the particular advertisement between 2 and 5 times.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a computer-implemented method for graphically displaying media buying options, the method including:

determining two or three attributes of each media buying option to be displayed, wherein at least one of said attributes is an exposure attribute;

displaying a plot of available media buying options, wherein the media buying options are plotted against a first axis corresponding to said exposure attribute and a second axis corresponding to the remaining attribute or one of the remaining attributes;

in response to a displayed media buying option being selected or deselected for purchase, recalculating the exposure attribute for each media buying option to account for the exposure of the selected or deselected media buying option, and;

displaying a new plot of the media buying options including the recalculated exposure attribute.

Preferably, the step of displaying a plot of available media buying options includes evaluating a set of media buying options against filter criteria and displaying only the media buying options that satisfy the filter criteria.

Preferably, the method includes providing on the display an indicator of the media buying option or options that maximise or minimise the absolute value of the exposure attribute per unit cost over a range of cost for the available media buying options. The indicator may be a line or band in the plot showing the outer limit of media buying options that maximise or minimise the absolute value of the exposure attribute per unit cost. The method may further include forming the line or band so as to have only a positive or a negative gradient along substantially the entire length of the line or band. Alternatively, the line or band may be calculated and plotted as an average of a group of options that maximise or minimise the absolute value of the exposure attribute per unit cost for each of a plurality of segments of the plot. In one embodiment, the indicator shows the media buying option or options that maximise the absolute value of the exposure attribute per unit cost.

Preferably, the method may further include allowing a user to select media buying options displayed in the plot. The method may still further include displaying a total cost of all previously selected media buying options and may further include displaying at least one total exposure attribute for all previously selected media buying options.

Preferably, the method further includes allowing a user to select media buying options displayed in the plot by directly selecting a media buying option within the plot.

Preferably, the method further includes allowing a user to select the metric used as the exposure attribute for the media buying options.

Preferably, the method includes differentiating in said plot any media purchase options that have been previously selected from those that have not been selected. When repeat purchases of a media buying option are possible, the method may include identifying in said plot the number of times each media buying option has been selected. The method may further include identifying in said plot the number of times each media buying option has been selected by displaying each media buying option as a number in said plot, the number indicating the number of times that media buying options has been selected.

Preferably, the method includes providing an option for the user to display, in a second plot having a first axis corresponding to or related to said cost attribute and a second axis corresponding to or related to said exposure attribute only previously selected media purchase options. Media buying options plotted in the second plot may be plotted by the negative of their cost and/or exposure attributes. The method may further include providing on the display an indicator of the media buying option or options that maximise or minimise the absolute value of the exposure attribute per unit cost over a range of cost for the available media buying options.

According to a second aspect of the invention, there is provided apparatus for graphically displaying media buying options, the apparatus including a computer operable to: read either a local or remote computer memory containing two or three attributes, at least one of which is an exposure attribute for each of a plurality of media buying options; cause to be displayed, on a computer display a plot of available media buying options, wherein the media buying options are plotted against a first axis corresponding to said exposure attribute and a second axis corresponding to the remaining attribute or one of the remaining attributes; allow a displayed media buying option to be selected or deselected for purchase; recalculate the exposure attribute for each media buying option to account for the exposure of the selected or deselected media buying option in response to a displayed media buying option being selected or deselected for purchase, and; display a new plot of the media buying options including the recalculated exposure attribute.

Preferably, the apparatus is operable to evaluate a set of media buying options identified by data in said computer memory against filter criteria and displaying only the media buying options that satisfy the filter criteria.

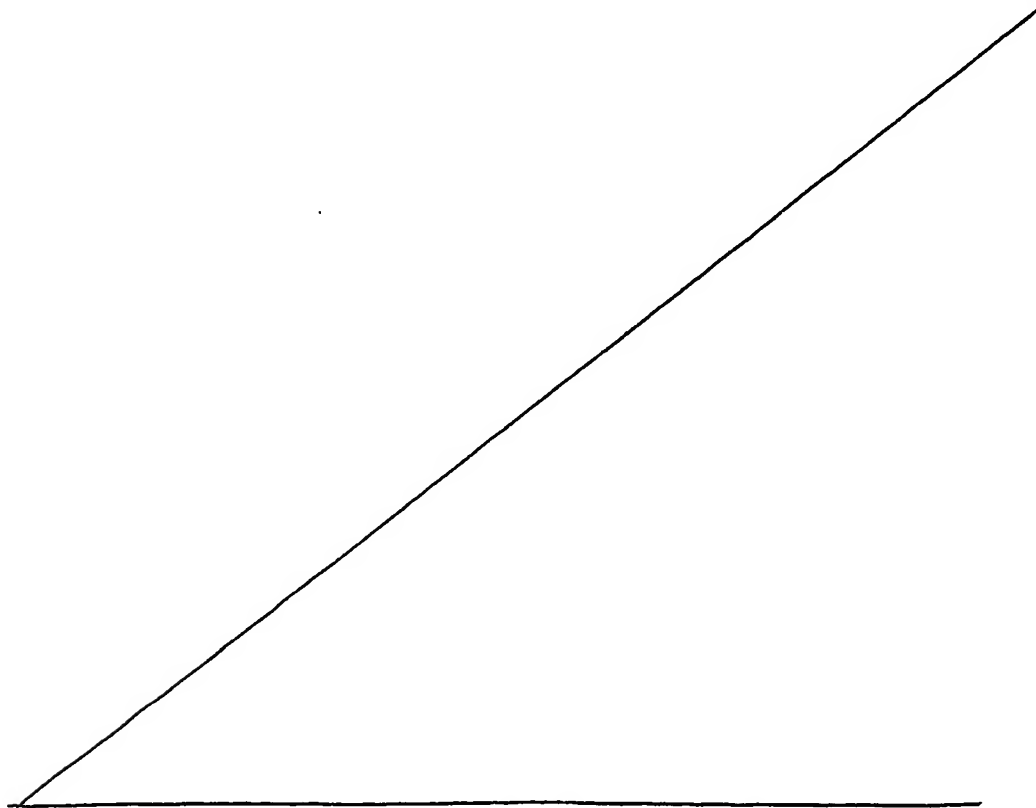
Preferably, the computer computes and causes to be displayed an indicator of the media buying option or options that maximise or minimise the absolute value of the exposure attribute per unit cost over the range of cost for the available media buying options. The indicator may be a line or band showing the outer limit of media buying options that maximise or minimise the exposure attribute per unit cost. The line or band may be computed so as to have only one or a positive or a negative gradient along substantially the entire length of the line or band.

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5 Preferably, when repeat purchases of a media buying option are possible, the computer causes each media buying option to be plotted so as to indicate the number of times that that media buying option has been selected.

10 Preferably, the computer is further operable to cause a second plot to be displayed having a first axis corresponding to or relating to said cost attribute and a second axis corresponding to or relating to said exposure attribute and plot in said second plot only previously selected media buying options. The computer may be operable to plot the media buying options in the second plot according to the negative of their cost and/or exposure attributes. The computer may be operable to, for the second plot, compute and display an indicator of the media buying option or options that minimise the exposure attribute per unit cost over the range of cost for the available media buying options. The indicator of the media buying option or options that minimise the absolute value of the

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Claims:

1. A computer-implemented method for graphically displaying media buying options, the method including:
5 determining two or three attributes of each media buying option to be displayed, wherein at least one of said attributes is an exposure attribute;
displaying a plot of available media buying options, wherein the media buying options are plotted against a first axis corresponding to said exposure attribute and a second axis corresponding to the remaining attribute or one of the remaining attributes;
10 in response to a displayed media buying option being selected or deselected for purchase, recalculating the exposure attribute for each media buying option to account for the exposure of the selected or deselected media buying option, and;
displaying a new plot of the media buying options including the recalculated exposure attribute.
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2. The method of claim 1, wherein the step of displaying a plot of available media buying options includes evaluating a set of media buying options against filter criteria and displaying only the media buying options that satisfy the filter criteria.
- 20 3. The method of either claim 1 or claim 2, wherein the remaining attribute or one of the remaining attributes is a cost attribute and the method includes providing on the display an indicator of the media buying option or options that maximise or minimise the absolute value of the exposure attribute per unit cost over a range of cost for the available media buying options.
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4. The method of claim 3, wherein the indicator is a line or band in the plot showing the outer limit of media buying options that maximise or minimise the absolute value of the exposure attribute per unit cost.
- 30 5. The method of claim 4, including forming the line or band so as to have only a positive or a negative gradient along substantially the entire length of the line or band.
6. The method of claim 4, wherein the line or band is calculated and plotted as an average of a group of options that maximise or minimise the absolute value of the exposure attribute per unit cost for each of a plurality of segments of the plot.
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7. The method of any one of claims 3 to 6, wherein the indicator shows the media buying option or options that maximise the absolute value of the exposure attribute per unit cost.
8. The method of any one of claims 3 to 7, further including displaying a total cost of all previously selected media buying options.
9. The method of any one of the preceding claims, further including displaying at least one total exposure attribute for all previously selected media buying options.
10. The method of any one of the preceding claims, further including allowing a user to select media buying options displayed in the plot by directly selecting a media buying option within the plot.
11. The method of any one of the preceding claims, further including allowing a user to select the metric used as the exposure attribute for the media buying options.
12. The method of any one of the preceding claims, including differentiating in said plot any media purchase options that have been previously selected from those that have not been selected.
13. The method of claim 12, wherein when repeat purchases of a media buying option are possible, the method includes identifying in said plot the number of times each media buying option has been selected.
14. The method of claim 13, further including identifying in said plot the number of times each media buying option has been selected by displaying each media buying option as a number in said plot, the number indicating the number of times that media buying options has been selected.
15. The method of any one of claims 3 to 14, including providing an option for the user to display, in a second plot having a first axis corresponding to or related to said cost attribute and a second axis corresponding to or related to said exposure attribute only previously selected media purchase options.

16. The method of claim 15, wherein media buying options plotted in the second plot are plotted by the negative of their cost and/or exposure attributes.
17. The method of either claim 15 or claim 16, including providing on the display an indicator of the media buying option or options that maximise or minimise the absolute value of the exposure attribute per unit cost over a range of cost for the available media buying options.
18. The method of any one of claims 1 to 17, further including allowing a user to select a plotted media buying option and displaying information about a media buying option when it is selected.
19. Apparatus for graphically displaying media buying options, the apparatus including a computer operable to:
- read either a local or remote computer memory containing two or three attributes, at least one of which is an exposure attribute for each of a plurality of media buying options;
 - cause to be displayed, on a computer display a plot of available media buying options, wherein the media buying options are plotted against a first axis corresponding to said exposure attribute and a second axis corresponding to the remaining attribute or one of the remaining attributes;
 - allow a displayed media buying option to be selected or deselected for purchase;
 - recalculate the exposure attribute for each media buying option to account for the exposure of the selected or deselected media buying option in response to a displayed media buying option being selected or deselected for purchase, and;
 - display a new plot of the media buying options including the recalculated exposure attribute.
20. The apparatus of claim 19, operable to evaluate a set of media buying options identified by data in said computer memory against filter criteria and displaying only the media buying options that satisfy the filter criteria.
21. The apparatus of claim 19 or claim 20, wherein the remaining attribute or one of the remaining attributes is a cost attribute and the computer computes and causes to be displayed an indicator of the media buying option or options that maximise or minimise

the absolute value of the exposure attribute per unit cost over the range of cost for the available media buying options.

- 5 22. The apparatus of claim 21, wherein the indicator is a line or band showing the outer limit of media buying options that maximise or minimise the exposure attribute per unit cost.
23. The apparatus of claim 22, wherein the line or band is computed so as to have only a positive or a negative gradient along substantially the entire length of the line or band.
- 10 24. The apparatus of any one of claims 19 to 23, wherein when repeat purchases of a media buying option are possible, the computer causes each media buying option to be plotted so as to indicate the number of times that that media buying option has been selected.
- 5 25. The apparatus of any one of claims 21 to 24, wherein the computer is further operable to display a second plot having a first axis corresponding to or relating to said cost attribute and a second axis corresponding to or relating to said exposure attribute and plot in said second plot only previously selected media buying options.
- 0 26. The apparatus of claim 25, wherein the computer is operable to plot the media buying options in the second plot according to the negative of their cost and/or exposure attributes.
- 5 27. The apparatus of claim 25 or claim 26, wherein the computer is operable to, for said second plot, compute and display an indicator of the media buying option or options that minimise the exposure attribute per unit cost over the range of cost for the available media buying options.
28. The apparatus of claim 27, wherein the indicator of the media buying option or options that minimise the absolute value of the exposure attribute per unit cost is a line or band drawn through the plot.
29. The apparatus of claim 28, wherein the line or band is an average of the options that minimise the exposure attribute per unit cost for each of a plurality of segments of the plot.

30. The method of any one of claims 1 to 18 when applied to the display of media buying options for a broadcasting business, for example television or radio.
- 5 31. The apparatus of any one of claims 19 to 29 when used to display media buying options for a broadcasting business, for example television or radio.
32. A computer-implemented method for graphically displaying media buying options as claimed in either claim 1 or claim 30 and substantially as herein described.
- 10 33. Apparatus for graphically displaying media buying options substantially according to any one of the embodiments herein described with reference to the accompanying drawings.

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